

REMARKS/ARGUMENTS

Claim 1 is amended to incorporate several additional limitations recited in previously presented claims 3, 12, and 19, each of which depended from claim 1. Claims 2-3, 11-12, and 19 are cancelled. The dependency of claims 13 and 20-21 is suitably revised. No new matter is added. These amendments do not require any new consideration or new search, because the additional limitations added to claim 1 were all included in the previously presented claims, which depended from claim 1. Entry of the above amendment is, therefore, respectfully requested as being fully appropriate after a Final Rejection. Upon entry of the above amendments, claims 1, 4-10, 13-14, and 20-21 are pending. Reconsideration of the present application is respectfully solicited in view of the above amendments and the following remarks.

I. Claim objections

Claims 19-21 are objected to due the recitation of the abbreviation of "SBR." Applicants have now amended the relevant pending claims by spelling out the abbreviation of "SBR" as "styrene butadiene rubber", as suggested by the Examiner. Withdrawal of the objections to these claims is, therefore, respectfully requested.

II. Claims are allowable under 35 U.S.C. § 103(a)

Claims 1-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hopkins (US 2002/0198305) in view of Vasseur (WO 02/088238). Claims 19-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hopkins in view of Vasseur as applied to claim 1, and further in view of Simonot (US2004/0030017). (For convenience, the citations below for Vasseur are from its English language equivalent US 2004/0127617.)

For reasons expressed below, claim 1, which has now been amended based on previously presented dependent claims 3, 12, and 19, and the remaining pending claims, which all depend

from claim 1, are not obvious over Hopkins in view of Vasseur and Simonot under 35 U.S.C. §103(a).

Independent claim 1 recites a **passenger car tire** comprising a tread. The tread comprises a rubber composition, which comprises a diene elastomer, silica in an amount of greater than 50 phr, a coupling agent, and a plasticising agent. The diene elastomer comprises a **styrene butadiene rubber copolymer and 40 to 80 phr of butyl rubber. The plasticising agent comprises 10 to 50 phr of an unsaturated (C₁₂-C₂₂) fatty acid triester of glycerol.**

(i)

The primary reference Hopkins is clearly directed to (among applications other than tires) tire tread of heavy vehicles, such as trucks and buses. *See* paragraphs 0002 and 0084, and claims 11-13 of Hopkins. Nowhere does Hopkins mention that the elastomeric composition disclosed therein can be used for a passenger car tire. Therefore, a modification of Hopkins based on Vasseur and Simonot as proposed by the Examiner would not produce the invention of claim 1 and its dependent claims, which are directed to a **passenger car tire**.

The Examiner argues as follows: "Hopkins teaches that its composition is used in tire tread compositions for vehicles. A passenger car is a type of vehicle. While Hopkins goes on to say that it is especially useful for tire tread of trucks and buses, it does not exclude other types of vehicles." *See* the Office Action, page 4, second full paragraph. This argument lacks merit.

The fact that Hopkins does not exclude other types of vehicles than trucks and buses is not sufficient in concluding that Hopkins discloses passenger cars. For a reference to disclose a claimed feature under 35 U.S.C. §§ 102 and 103, the reference must positively disclose the claimed feature either expressly or implicitly or inherently. *See, e.g.,* MPEP 2112. Here,

nowhere does Hopkins disclose a passenger car, nor can the Examiner identify any passage in Hopkins that discloses a passenger car expressly, implicitly, or inherently.

It is well settled law that a reference, which discloses a genus encompassing a claimed species without specifically disclosing the claimed species, cannot be relied on as disclosing the claimed species. *See, e.g.,* MPEP 2144.08. (“When a single prior art reference which discloses a genus encompassing the claimed species or subgenus but does not expressly disclose the particular claimed species or subgenus, Office personnel should attempt to find additional prior art to show that the differences between the prior art primary reference and the claimed invention as a whole would have been obvious.”) Therefore, by merely disclosing the genus “vehicles”, Hopkins cannot be relied on as disclosing the species “passenger car.”

Moreover, as explained below in more detail, the requirements for heavy vehicles, such as trucks and buses, which are expressly disclosed in Hopkins, are substantively different from the requirements for light vehicles, such as passenger cars, which are not disclosed by Hopkins in any manner. Therefore, there is no basis for a person of ordinary skill in the art to conclude that the teachings in Hopkins, which are specifically directed to heavy vehicles, will be equally applicable to passenger cars.

The Examiner also argues: “Moreover, in paragraph 2 of Hopkins, desirable properties of a vehicle tire, such as good wet traction, good wear characteristics, and low rolling resistance, are listed and it is noted that these are desirable properties for all vehicle tires, not just tires for trucks and buses.” *See* the Office Action, page 4, second paragraph. This argument misses the point. At paragraph 2, Hopkins explains, **“Many properties are desirable in a rubber used in a vehicle tire tread and generally improvements in one property are achieved at the expense of other properties.”** (Emphasis added.) Different types of vehicles have different

specific requirements for various desired properties, such as grip performance and wear characteristics. Because improvements in one property are achieved at the expense of other properties, a vehicle tire cannot have all the desired properties at their best. In other words, there must be some compromises among the many desired properties. But one type of vehicle tire may tolerate certain compromised desired property more than another different type of vehicle. Therefore, absent any apparent reason, a person of ordinary skill in the art would not modify the tire treads of Hopkins, which are designed for trucks and buses, based on the relevant teachings of Vasseur and Simonot, which are all directed to tire treads for passenger cars. In fact, a person of ordinary skill in the art would be discouraged to do so due to the concern that improving one property of a heavy vehicle tire tread based on the teachings concerning a light vehicle tire tread may render another property of the heavy vehicle tire tread unacceptable.

(ii)

Hopkins is directed to a **heavy** vehicle running at a **low** speed.

Vasseur is directed to a **light** passenger vehicle running at a **high** speed. Similarly, the relevant teachings of Simonot concerning the use of SBR (i.e., paragraph 0082 of Simonot), which are relied upon by the Examiner, are also directed to a **light** passenger vehicle running at a **high** speed.

There is no apparent reason for a person of ordinary skill in the art to add unsaturated (C₁₂-C₂₂) fatty acid triester of glycerol to Hopkins' tire tread composition, based on Vasseur, which is directed to a **light** passenger vehicle running on roads at a **high** speed, to improve the grip of Hopkins' tire, which is directed to a **heavy** vehicle running at a **low** speed.

Vasseur is directed to tires of a passenger vehicle, which is apparently designed for running on roads at a very high speed. *See* paragraph 0002. There is a need to improve the grip of tires of a passenger vehicle on dry or damp ground. *See* paragraph 0005.

On the other hand, as stated above, Hopkins is directed to tires of a heavy vehicle, which is designed to run at a much lower speed compared to a light passenger car. Due to its much lower speed and heavier weight compared to a light passenger car, a heavy vehicle does not have the same concern or demand for high grip ability, as does a light passenger car in Vasseur. Indeed, as evidenced by Sandstrom, which was previously cited by the Examiner, it is well known that heavy vehicles rely more on their weight to provide tire tread traction over the ground, in contrast to passenger tires. Neither Hopkins nor Vasseur teaches, discloses or suggests any need to improve the grip ability of the tire of a heavy vehicle. In fact, as noted above, improving the grip ability of the tire of a heavy vehicle may render other properties of the tire of the heavy vehicle unacceptable.

Therefore, the references cited by the Examiner provide no apparent motivation for a person of ordinary skill in the art to add unsaturated (C_{12} - C_{22}) fatty acid triester of glycerol, which is used in Vasseur for a light passenger vehicle running at a high speed, to Hopkins' tire tread composition for a heavy vehicle running at a much lower speed.

Nor is there any reason for a person of ordinary skill in the art to substitute a blend of SBR and butadiene rubber in Simonot for the natural rubber of Hopkins, as proposed by the Examiner. *See* the Office Action, page 3, second full paragraph. As stated by the Examiner, Simonot teaches that an SBR and butadiene rubber blend is desirable for passenger car tires. But Hopkins, as stated above, discusses tire treads for trucks and buses, not passenger cars.

(iii)

A person of ordinary skill in the art would have no reasonable expectation of success for a modification of Hopkins' heavy vehicle tire composition based on Vasseur's teachings, as proposed by the Examiner.

Specifically, a passenger vehicle as disclosed in Vasseur or Simonot and a heavy vehicle as disclosed in Hopkins have different requirements in many respects, including rolling resistance, wear resistance, and wet traction. **These requirements are often contradictory to each other.** As stated by Hopkins, improvements in one property are achieved at the expense of other properties.

Even if a person of ordinary skill in the art would try to improve the grip performance of the tire treads of Hopkins for trucks and buses, this person would be discouraged to do so due to the concern that another property may be compromised and fail to satisfy the specific requirements of truck or bus tire treads, which are different from the specific requirement of light passenger car tire treads.

More importantly, the basic elastomeric composition in Hopkins is significantly different from the composition of Vasseur or Simonot. For example, Hopkins requires that its composition comprises **natural rubber and halobutyl elastomer**. *See, e.g.,* abstract, paragraphs 0002, 0003, 004, 0007-0013, Tables 1 and 4, and Examples 1-2. On the other hand, Vasseur explicitly requires and emphasizes that its composition comprise **highly unsaturated diene elastomers**, typically SBR, i.e., the diene elastomer has a high content (>50%) of units of diene origin. *See* paragraph 0044. Similarly, Simonot also discloses that SBR is preferable for a passenger car tire composition. *See* paragraph 0082.

The butyl rubbers disclosed in Hopkins belong to the class of **essentially saturated** diene elastomers, having a very low content (less than 15%) of units of diene origin. *See* paragraph 0030 of the present application. The natural rubber disclosed in Hopkins is often used in heavy vehicles, such as trucks. *See* paragraph 0002 and Table 1 of Hopkins. SBR disclosed in Vasseur and Simonot is synthetic and highly unsaturated.

Accordingly, due to the significant differences concerning the composition and requirements of Hopkins and Vasseur (or Simonot), a person of ordinary skill in the art would not have any reasonable expectation of success to simply add one ingredient disclosed in Vasseur (or Simonot) to another significantly different tire composition for a different type of vehicle as disclosed in Hopkins. Nor would s/he reasonably expect that doing so would not in actuality adversely affect or interfere with some critical properties of Hopkins' heavy vehicle tire treads.

(iv)

The unexpected results as shown at paragraphs 0122-0140 of the present published application further indicate that the invention as described in the claims of the present application is not obvious over Hopkins in view of Vasseur and Simonot. *See* MPEP 716.02(a) (III) ("Presence of an unexpected property is evidence of nonobviousness.") As explained at, e.g., paragraph 0006 of the present published application, the grip of the tire as described in the claims of the present application on wet ground is significantly increased. This unexpected result is further demonstrated by the comparative test results described at paragraphs 0122-0140 of the present published application.

In response to Applicant's previously submitted statements concerning unexpected results of the tire tread made in accordance with the present invention, the Examiner points out that broader ranges are claimed for each of the components in the claims than what is shown in

the experiments. Without conceding the correctness of the Examiner's position, Applicants have now narrowed the ranges recited in claim 1 to facilitate the allowance of the prosecution.

III. Conclusion

For at least the reasons expressed above, claim 1 and the remaining pending claims 4-10, 13-14, and 20-21, each of which depends from claim 1, are not obvious under 35 U.S.C. §103(a).

Applicants believe that the present application is now in condition for allowance. Early and favorable consideration is earnestly requested.

It is believed that no other fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
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Dated: August 11, 2010